BEFORE THE POLLUTION CONTROL HEARINGS BOARD
OF THE STATE OF WASHINGTON

ITT RAYONIER, INCORPORATED, GRAYS HARBOR DIVISION, Appellant, V. STATE OF WASHINGTON, DEPARTMENT OF ECOLOGY, Respondent.	PCHB No. 85-218 FINAL FINDINGS OF FACT, CONCLUSIONS OF LAW, AND ORDER

This matter, the appeal of a National Pollutant Discharge Elimination System (NPDES) Waste Discharge Permit (No. WA 000307-7) issued to ITT Rayonier, Incorporated, Grays Harbor Division Rayonier, came on for hearing before the Pollution Control Hearings Board on November 19 and 20, 1986.

Appellant Rayonier was represented by John W. Phillips, Attorney at Law. Respondent Department of Ecology (Ecology) was represented by Allen T. Miller, Jr., Assistant Attorney General. The proceedings were reported by Kim L. Otis and Bibi Carter of Gene Barker and Associates.

Witnesses were sworn and testified. Exhibits were examined. Post hearing testimony by affidavit and deposition was received in December and January. Closing argument in the form of post-hearing briefs were submitted on February 6, 1987.

From the testimony and exhibits, the Board makes the following:

FINDINGS OF FACT

I

BACKGROUND. Appellant Rayonier is a corporation which operates a papergrade sulfite pulpmill at Hoquiam, Washington, which discharges wastes to the North Channel of the Grays Harbor Estuary.

II

Respondent Ecology is an agency of the State of Washington with responsibilities for conducting a point source waste discharge permit program whch meets the requirements of both federal and state law.

III

On September 30, 1985, Ecology reissued NPDES Permit No. WA 000307-7 to Rayonier for the Hoquiam mill. The permit was accompanied by Order No. DE 85-323.

The reissued permit establishes more stringent effluent limits for biochemical oxygen demand (BOD) and total suspended solids (TSS) than were imposed in the mill's preceeding permit and for the first time includes a fecal coliform limitation. In addition, the permit expressly prohibits the discharge of waste activated sludge (WAS) to the receiving waters.

The permit also requires the submission of a treatment system operating plan describing operations at the production levels used in developing the effluent limitations and procedures to maintain design treatment efficiency at lower production levels. The wastewater

treatment system is then to be operated according to procedures and criteria described in the Plan, as approved by Ecology.

The Order accompanying the permit, among other things, requires Rayonier to conduct two studies related to fecal coliform. The first is a study which correlates fecal coliform concentrations in the outfall to concentrations in the receiving water at the edge of the dilution zone. The second is a study to determine if chlorination of "recycled activated sludge" will control the discharge of fecal coliform to the receiving water.

IV

On October 31, 1985, Rayonier filed its appeal of the reissued permit and order with this Board.

The appeal challenged the prohibition of the discharge of WAS, the fecal coliform limitation, the requirement for a treatment system operating plan, the requirement for a fecal coliform study, and the requirement for a chlorination study.

V

On January 10, 1986, this Board issued an Order staying the appealed provisions, with the exception of the fecal coliform limitation. The stay was conditioned on the understanding that Ecology would be satisfied during the pendancy of the appeal with a standard requiring only that the company use best efforts to meet the fecal coliform limit through use of equipment on hand.

VI

Rayonier has in place an activated sludge wastewater system for treatment of the effluent from the Hoquiam mill. Waste flow through this system begins at a primary clarifier. Settled solids from this unit are conducted to a sludge dewatering complex and then landfilled. The effluent from the primary clarifier is sent to an aeration basin where micro-organisms are present to provide biological treatment to the wastes.

From the aeration basin the effluent flows to secondary clarifiers where the biological solids produced in the aeration basin are removed by sedimentation. Most of the settled solids (recycled activated sludge or RAS) are hydraulically removed from the bottom of the secondary clarifiers and transported back to aeration basin. By this means approximately 80% of the biota which leaves the basin is recycled through it.

The remainder of the settled biological solids in the secondary clarifiers is waste activated sludge (WAS), the creation of which is essentially the purpose of the biological treatment process. Part of the WAS is pumped from the secondary clarifier, mixed with sludge from the primary clarifier, and sent to the solids dewatering complex. However, the rest of the WAS is pumped to the outfall where it is directly discharged to the receiving waters.

VII

The wastewater treatment system was designed and built for a mill

producing around 600 tons of pulp a day. Since its construction, however, production of the mill has been cut by more than half, to around 270 tons a day. The treatment system, thus, is oversized for the present level of output.

VIII

The NPDES permit issued to Rayonier is intended to carry out requirements of both the federal Clean Water Act and the state water pollution control statute.

Under the federal law, industrial sources were as an initial step obliged to meet effluent limitations requiring the application of the best practicable control technology currently available (BPT). See 33 U.S.C. 1311(b)(1)(A). Effluent limitations for achieving this standard were developed by the United States Environmental Protection Agency (EPA) and have been implemented by the state through the NPDES permit program.

Rayonier's treatment system was designed and constructed to meet the BPT requirements, which were directed to production-related limitations for BOD and TSS. Rayonier's reissued permit implements those limitations, and Rayonier has no trouble meeting the requirements specified for BOD and TSS.

IX

As the next step after BPT, the 1972 version of the federal act called for the later achievement of more restrictive limitations representing the best available technology economically achievable

(BAT), in a process progressing toward the statute's ultimate goal of eliminating all pollutant discharges.

Amendments to the federal act in 1977 substituted a different less rigorous second-step treatment standard for conventional pollutants: best conventional pollutant control technology (BCT). The EPA was charged with publishing a list of conventional pollutants including, as a minimum, BOD, TSS, fecal coliform and pH. Toxic pollutants, however, remained subject to achieving the BAT limits. See 33 U.S.C. 1311(b)(2).

For pulp mills in the subcategory of Rayonier's Hoquiam mill, EPA has determined that BPT is equal to BCT. 40 CFR 430.213. No applicable federal effluent limitation for fecal coliform has been promulgated.

X

WASTE ACTIVATED SLUDGE PROHIBITION. Ecology has determined that WAS should not be discharged by any point source in the state, and at other industrial sites is attempting to insure that this does not occur. Ecology's position is that the discharge of WAS has already been prohibited throughout the state by the operation of standard NPDES permit conditions relating to "solid waste" and "bypass" discharges.

For Rayonier's Hoquiam mill, however, this interpretation of standard permit language is undercut by the initial treatment system operating manual, submitted by Rayonier for the system in 1977. The

manual explicitly describes the direct discharge of WAS as a part of the normal operating regime at the mill. Ecology reviewed and approved this manual.

We find that Ecology had not, in fact, prohibited the discharge of WAS at Rayonier's mill, until it did so expressly in the current reissued permit.

XI

Eliminating the discharge of WAS would significantly lower the BOD and TSS discharged by the mill. But, no provision of federal law or regulation expressly prohibits the WAS discharge.

Thus, in effect, Ecology's reissued permit requires more BOD and TSS removal than necessary to comply with present federal law requirements. We find that the prohibition on the discharge of WAS is imposed as a more stringent state law requirement.

XII

The state law basis calls into play the state law treatment standard. This standard is used here not as the equivalent of any federal formulation, but rather as an independent criterion.

The state standard calls for the application of "all known, available and reasonable methods" of treatment prior to the discharge of wastes into waters of the state. RCW 90.48.010, 90.52.040, 90.54.020(3)(b).

XIII

No contention is made that the dewatering and land disposal of

WAS is not a "known and available" treatment method. It is indeed a method which Rayonier is already employing on primary sludge and on part of the WAS.

Appellant's main argument is that the WAS discharge prohibition is not "reasonable."

XIV

Ecology asserts the general principle that once pollutants are removed by treatment, they ought not to be put back into the waste water stream. The agency believes that the ultimate goal of zero discharge is served by a progressive tightening of restrictions on discharges in each new round of reissued permits.

Ecology argues that the cost of such a commonly-used and accepted technology as the dewatering and landfilling of sludge should not be considered by the Board.

XV

In opposing the ban on WAS discharges, Rayonier emphasizes its present ability to meet the federal effluent limitations for BOD and TSS, even with the discharge of WAS. Having met the BPT and BCT requirements for these conventional parameters, the company sees the discharge or non-discharge of particular waste products as a question of internal operating procedure which should not concern the regulatory agencies.

However, it is the cost of the WAS discharge prohibition which concerns the company most seriously. Rayonier estimates that

preventing the discharge of all WAS will cost about $207,000 per year over current operating expenses, a 5% increase. The company asserts that this cost is excessive.

XVI

We have considered cost in relation to effluent reduction benefits. Eliminating WAS discharges will result in the estimated removal, at current production rates, of an additional 799,000 pounds per year of BOD and an additional 3,195,000 pounds per year of TSS. In percentage terms, this means a 16% reduction in BOD loading and a 30% decrease in TSS. In addition, ceasing discharges of WAS will mean ceasing discharges of any toxic materials which are associated with the waste sludge.

XVII

Rayonier compared the Hoquiam mill's cost per pound of BOD removal without discharging WAS to the cost per pound of BOD removal calculated by EPA as a benchmark cost for meeting the BPT effluent limit at a model mill of the same type. When fixed costs are adjusted upward to 20%, the EPA benchmark is 20¢ per pound. Assuming the same fixed costs, the Hoquiam mill's per pound BOD removal cost is 37¢ per pound with no WAS discharge.

Rayonier provided a similar comparison for BOD and TSS removal combined. At 20% fixed costs, the EPA benchmark is 12¢ per pound, compared to 21¢ per pound at Hoquiam when prohibited from discharging WAS.

XVIII

However, using the same method for deriving costs, the Hoquiam mill's costs per pound for BOD removal and for combined BOD and TSS removal are about the same with or without discharging WAS. Thus, the disparity between EPA's benchmark and Rayonier's per pound removal costs would remain essentially unchanged if WAS discharges ceased.

As noted, the existing treatment plant was installed in order to meet BPT. Yet, there is nothing in the record to indicate that Rayonier sought a variance from the BPT standards at the Hoquiam mill on the grounds that the disparity between benchmark costs and the mill's costs was excessive.

XIX

In the cost per pound of pollutant removed formula, a major cost component is fixed costs. These are annual charges which are directly related to the capital expenditures for construction of the pollution abatement facilities (e.g., depreciation on control technology, interest on the capital borrowed for construction, spare parts, maintenance materials, insurance, taxes).

The capital expenditures needed for compliance with the WAS discharge prohibition have already been made in the installation of the wastewater treatment system designed to meet BPT which is in place. Thus, the annual fixed charges associated with these capital outlays had been committed to before the prohibition was imposed.

XX

We find that the prohibition on discharging WAS can be implemented without impeding production, without requiring any excessive initial outlay and without imposing extensive additional maintenance costs. Moreover, the benefits in pollution reduction can be achieved without an increase in the cost per pound of pollutants removed by the mill.

Under all the circumstances, we are not convinced that the prohibition on discharging WAS is unreasonable on economic grounds.

XXI

Rayonier also asserts that the prohibition on the discharge of WAS is unreasonable as a technical matter. The company points out that the discharge of WAS is used as a tool to maintain the solids balance of the treatment system. When the production of too much biomass leads to a high sludge generation rate, extra WAS can be discharged in order to regain the proper food to micro-organism ratio.

The required balance in the system, however, does not dictate that the extra WAS must go into the receiving waters. We find that the treatment system, if carefully operated, can function appropriately in terms of the balance of solids needed, without the option to discharge WAS.

XXII

INTERIM FECAL COLIFORM LIMITATION. The organisms that test positively as fecal coliform in Rayonier's effluent are predominantly

"klebsiella pneumoniae." The company claims that these organisms are not properly characterized as fecal because they are a poor indicator of the pathogens of human health significance which are the target of fecal coliform limits.

However, it is undisputed that klebsiella meet the standard definition of fecal coliform. EPA's development document for BPT at pulp mills states:

> "The fecal coliform test is the most valid microbiological parameter for pulp and paper effluents presently available. The excessive densities of fecal coliform and more specifically, klebsiella pneumoniae, as measured by the fecal coliform test in pulp and paper mill effluents are significant. Klebsiella can complicate E. coli detection, they can be pathogenic, and they are coliforms by definition. In addition, klebsiella are found in the intestinal tract of approximately 30% of humans and 40% of animals. Klebsiella reflect high nutrient levels in pulp and paper mill wastes. With adequate treatment for reduction of nutrients, densities of klebsiella and also total coliforms should be significantly reduced."[1]

Nevertheless, EPA has never promulgated a fecal coliform limitation for pulp mills. The limitation in the reissued permit is, thus, imposed by Ecology as a requirement of state law.

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1. "Development Document for Effluent Limitations Guidelines (BPCTCA) for the Bleached Kraft, Groundwood, Sulfite, Soda, Deink and Non-Integrated Paper Mills Segment of the Pulp, Paper and Paperboard Point Source Category," U. S. Environmental Protection Agency, December 1976, p. 278.

XXIII

The reissued permit limits the daily discharge to 20,000 fecal coliform per 100 milliliters (ml) as a monthly average, with not more than 10% of the samples containing 60,000 fecal coliform per 100 ml. A permit footnote states:

> The fecal coliform limitations are interim limits until a study required by a department Order accompanying this permit is completed. After review of the study, the department may modify the fecal coliform limitations to reflect the study's findings. (p. 3)

XXIV

The receiving waters in question are Class B (Good). For marine waters, the relevant water quality standard is as follows:

> Fecal coliform organisms shall not exceed a geometric mean value of 100 organisms per 100 ml, with not more than 10 percent of samples exceeding 200 organisms per 100 ml.
> WAC 173-201-045(3)(C)(i)(B).

XXV

The purpose of the permit's fecal coliform limitation is simply to provide an end-of-the-pipe number which can be easily monitored to insure that the relevant water quality standard is not exceeded in the receiving waters at the boundaries of the dilution zone the mill is allowed. The numbers set forth in the permit, based on a die-off study performed by Rayonier, are intended to produce such a result.

XXVI

Rayonier questions the use of its die-off study, asserting that it was not limited to the organisms in its effluent which meet the

standard definition of fecal coliform.

However, Rayonier also asserts that the ratio between the daily maximum and the monthly average in the effluent limitation is higher than necessary to meet the applicable water quality standard.

We are convinced that achievement of the coliform limits at the end of the pipe will, at least, insure compliance with the relevant water quality standard.

Moreover, we note that Rayonier's existing system readily meets the permit's fecal coliform limitation the vast majority of the time. Occasional spikes in the past coliform counts may have been the result of erroneous readings. On the record before this Board, we find that more probably than not the interim fecal coliform standard can be achieved without additional treatment measures.

XXVII

COLIFORM AND CHLORINATION STUDIES. Rayonier resists the fecal coliform correlation study ordered by Ecology on the grounds that it would need to violate the permit's standard to conduct a meaningful study. The company advises that generally they can't find enough fecal coliform organisms in their system to perform the required research.

XXVIII

By requiring an additional study to determine if chlorination of returned activated sludge (RAS) will control the discharge of fecal coliform to the receiving water, Ecology is suggesting the use of

additional measures beyond conventional biological treatment to control fecal coliform.

Use of chlorine is, of course, a well known method for killing organisms in water. But the placement of this highly toxic substance into the activated sludge system does not represent a proven technology for the control of fecal coliform from pulp mills. Possible secondary costs are not known, e.g., effects on the operation of the treatment system, impacts of residual chlorine in the receiving water.

XXXIX

Any Conclusion of Law which is deemed a Finding of Fact is hereby adopted as such.

From these Findings of Fact, the Board makes the following

CONCLUSIONS OF LAW

I

The Board has jurisdiction over these parties and these issues. Chapter 43.21B RCW

II

Under state law, wastes shall be provided with "all known, available and reasonable methods of treatment" prior to their discharge into waters of the state. RCW 90.48.010, 90.52.040, 90.54.020(3)(b).

In general, this standard requires that pollutant discharges be limited to levels achievable by proven technology. That such levels

may be more restrictive than necessary to comply with receiving water quality standards does not effect their validity.

III

No argument is made here that the technology for complying with the prohibition on discharging WAS is not "known or available." The contention is that the prohibition is not "reasonable," either because of its impact on the operation of the activated sludge system or because of its cost.

On the basis of our findings, we conclude that the "reasonableness" standard has not been violated and that, therefore, the prohibition is within the state treatment standard. (See Findings of Fact XX and XXI)

IV

In so concluding we have considered all data on costs offered in evidence, except that which refers specifically to Rayonier's ability to pay for the required waste treatment. Accordingly, as to those appellant's exhibits on which a ruling was reserved, A-6, A-7, A-12, A-14, A-15, A-16, A-17, A-18, A-19 and A-20 have been admitted and considered. Exhibits A-21 and A-22 have been excluded and were not considered.

This ruling is an extension of our prior decision in Weyerhaeuser Company v. DOE, PCHB No. 85-220 (1986). There we declined to consider whether the treatment required was within the permittee's economic capability. We did this within the context of an effort by DOE to

impose BCT.

Here the WAS prohibition, in effect, requires the mill to exceed BCT. But, under federal law, whether requirements represent the maximum use of technology within the economic capability of the owner or operator become relevant only in relation to the stricter BAT standard. See EPA v. National Crushed Stone Association, 449 U.S. 64, 66 L.Ed.2d 268, 101 S.Ct. 295 (1980); 33 U.S.C. 1311(c).

BAT is a standard which approaches the outer limits of the state of the art of pollution control. See 33 U.S.C. 1314(b). On the WAS discharge issue in the instant case we deal only with conventional technology. We do not believe the prohibition comes near the BAT standard in stringency.

Among other things, the state law is intended to implement the federal Clean Water Act. RCW 90.48.260. Thus, we conclude that, evidence about individual economic capability does not become relevant under state law until an advanced level of technology, approximating BAT is demanded. The level of technology required here is not unusual, innovative or even highly advanced.

V

Ecology objects to all evidence concerning costs. We disagree. The evidence presented on benchmark costs and on Rayonier's costs is, we conclude, relevant to the economic aspect of "reasonableness." In assessing this information, we admitted and considered the entire EPA development document for BPT in the relevant subcategory (Papergrade

Sulfite--Blow Pit Wash), rather than the short excerpt offered by appellant. (See footnote 1 above, p. 12).

However, the effluent reduction benefits of the prohibition on discharging WAS were considered along with costs. The measurable benefits anticipated here contrast sharply with the situation in Weyerhaeuer Company v. DOE, supra, where no effluent reduction benefits were found.

VI

In reaching our Conclusion on the WAS discharge issue, we have considered the case of Weyerhaeuser Company v. Southwest Air Pollution Control Authority (SWAPCA), 91 Wn.2d 77, 586 P.2d 1163 (1978), which construes the phrase "all known, available and reasonable methods" in an air pollution context.

While stating that the air pollution authority could not "require a system that would impose an unreasonable financial burden on the applicant because of excessive initial outlay or annual operating costs," (91 Wn.2d at 82), the SWAPCA court did not explicity deal with the ability to pay issue, a familiar feature in the water pollution control law setting. See EPA v. National Crushed Stone Association, supra. The SWAPCA court left evaluation of whether costs are "excessive" to a case by case examination and emphasized deference to the specialized fact-finding expertise of the administrative process, including the Pollution Control Hearings Board.

The SWAPCA court also suggested other factors which can effect

reasonableness, such as substantially impeding plant production for only moderate pollution reduction gains, or the need for frequent, extensive and expensive maintenance of an advanced system. None of these factors are even present in the instant case.

Looking at the entire record, we see no conflict between our decision here and the SWAPCA decision on the matter of "reasonableness".

VII

"Klebsiella pneumoniae" is at present within the standard definition of fecal coliform. See WAC 173-201-025(4). We conclude, therefore, that it is subject to regulation as fecal coliform.

VIII

With or without the permit modification under review, Rayonier is required to meet the applicable water quality standard for fecal coliform. RCW 90.48.035, 90.48.080. The interim effluent limitation imposed is merely an effort to aid enforcement of the water quality standard by providing an end-of-the-pipe number which can readily be measured. Ecology, thus, is not attempting to impose a new limit on the Hoquiam mill's discharges of fecal coliform, but rather is seeking a more easily monitored means for enforcing an existing restriction. Further study may indicate a need for refinement of the numerical values.

We conclude that there is no legal barrier to Ecology's imposing a fecal coliform limitation which will achieve the result sought. We

are persuaded that more probably than not the interim standard established by the agency will in fact insure this result, while the matter is being evaluated in greater detail. (See Finding of Fact XXVI)

IX

The state water pollution control law empowers Ecology to issue "appropriate" orders to dischargers in regard to controlling the polluting content of wastes discharged. RCW 90.48.120. The Order in the instant case (No. DE 85-323) which requires "a study which correlates fecal coliform concentrations in the outfall to that in the receiving water at the edge of the dilution zone" is, we conclude, within the power of the agency to impose.

If complying with the fecal coliform study requirement necessitates a temporary violation of the water quality standard, we construe the Order as an expression of Ecology's willingness to consider this fact in the exercise of its prosecutorial discretion.

We are aware that practical difficulties may prevent the successful conduct of the required study. Thus, while sustaining the study requirement, we emphasize that Rayonier can be required to do no more than exercise its best efforts to develop the data sought.

X

It is probable that the fecal coliform study, if successful, will show that no additional technology (beyond the cessation of all WAS discharges) need be applied to meet an end-of-the-pipe fecal coliform

standard designed to insure compliance with the applicable water quality standard. (See Finding of Fact XXVI)

Accordingly, we conclude that the requirement of a study "to determine if chlorination of recycled activated sludge will control the discharge of fecal coliform to the receiving water" (Order No. DE 85-323) is premature and not presently "appropriate" under RCW 90.48.120 for the accomplishment of Ecology's objectives.

If at some future time it appears that further controls are needed to insure that fecal coliform standards are met, Ecology may revisit imposing a requirement for further studies, mindful of the SWAPCA decision's teaching on the terms "known" and "available":

> ...SWAPCA may not require an applicant to develop new technology to advance the art of emission control. The "advance" must be "known" in the sense that it has been tested and found to control emissions effectively and efficiently. Under this test SWAPCA may not insist that an emission source be utilized as a proving ground for as yet untried control technology. An applicant must, however, incorprate into its proposal those control systems previously developed and presently available. 99 Wn.2d at 81, 82.

XI

The requirement for submission of a treatment system operating plan is, we conclude, within the authority of Ecology to require as a permit condition. RCW 90.48.180. See State v. Crown Zellerbach, 92 Wn.2d 894, 602 P.2d 1172 (1979).

We disagree with appellant that the imposition of a condition of this type is limited by RCW 90.48.110 to the occasion of the

construction of new treatment systems.

However, we note that the review and approval of a new treatment system operating plan ought not to be employed as a means to impose sub silentio more onerous treatment requirements than contained in the reissued permit. Submission of the operating plan should not serve as a mechanism for avoidance of the public process of permit amendment, however arduous that process may be.

XII

Any Finding of Fact which is deemed a Conclusion of Law is hereby adopted as such.

From these Conclusion of Law the Board enters the following

ORDER

NPDES Permit No. WA 000307-7 as reissued on September 30, 1985, is AFFIRMED.

Order No. DE 85-323 is REVERSED as to the requirement for a study of chlorination of recycled activated sludge. In all other respects, Order No. DE 85-323 is AFFIRMED.

DONE THIS 5th day of January, 1989.

POLLUTION CONTROL HEARINGS BOARD

Wick Dufford
WICK DUFFORD, Presiding

Judith A. Bendor
JUDITH A. BENDOR, Member